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10/509,431

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EXAMINER

PADGETT, MARIANNE L

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/509,431	Applicant(s) SHORT ET AL.	
	Examiner MARIANNE L. PADGETT	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/23/2009 & 10/27/2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-76 (renumbered) is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41-76 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/27/09</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. **A Request for Continued Examination** under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/23/2009 has been entered.

The renumbering of claims 73-77, to now read as 72-76, due to their never having been a claimed 72, is noted & appropriate according to CFR 1.126.

The examiner notes that the cited support on pages 15-16 for the mask plate limitation as added in independent claim 41 is sufficient, also noting that figure 1 is relevant thereto.

Amendments of 9/23/09 to the claims provide corrections for problems as set forth in section 2 of the action mailed 6/23/2009, however they have created new phrasing problems through scientifically illogical or imprecise relationships, including new matter issues (see sections 2 & 15). Also applicants' citation of support for the room temperature limitation in claim 63, as provided in the original specification on page 12, removes the 112, first paragraph rejection in section 14 of the action mailed 6/23/2009.

2. **Claim 41 is objected** to because of the following informalities: the amendment to **claim 41**, which is added as the last two lines of the claims in order to have correct grammar should employ --an aperture--, instead of "a aperture".

Appropriate correction is required.

Claims 41-76, especially 41, 43, 56 & 58-62 are rejected under 35 U.S.C. **112, second** paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

To the best at the examiner's knowledge, it is not possible to create a plasma using a monomer, one must input energy, such as RF energy to cause excitation **to produce a plasma**, hence it is unclear in

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independent **claim 41** how applicants are "using at least one organic compound monomer as a source to produce a plasma", i.e. the source for generating the plasma = organic monomer, which is what actually being claiming! Would applicants actually mean something more scientifically logical, such as -- using at least one organic compound monomer as a polymer source material when producing a plasma... --? In other words, while one may be using a gas or vapor when producing a plasma, a gas or vapor does not itself produce the plasma!

Applicants' phrase modification in **claim 41**, line 6, reciting "(i) the monomer source" also has interpretation problems, as well be preceding language may construe "... monomer as a source" \equiv the monomer source, which would be the input port for the monomer into the plasma or moving the container that supplies the monomer, or the like; however read in light of the specification no discussion was found of moving the monomer source with respect to the substrate when there was a mask (e.g. mask plate) present, so it is unclear how one is supposed be moving the source of the monomer (which one is using to produce the plasma) relative to the substrate's location. This is also particularly relevant to **claim 43** (also see section 15 below). If one assumes that the intended meaning for producing the plasma was as suggested above, that the organic monomer(s) is used when producing the plasma, so as to enable plasma deposition of a plasma polymer, one must still determine what is encompassed by moving the "monomer source" relative to the substrate, where the monomer source is used when producing the plasma, thus are you moving containers that supply the monomer to the plasma chamber or moving their input ports; or are the actual monomers considered synonymous with the monomer source, such that it would read on mere input of the monomers into the plasma, since the monomers must move to be input into a plasma chamber? While the examiner strongly suspects that the intent was to move plasma excited species formed from the monomers in relation to the substrate, as these species are output

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from the plasma generation zone, however nothing in the specification was found by the examiner to associate any such movement with the required mask plate, nor does the claimed "monomer source" properly correspond to such a meaning (while most logical or useful, it's the least consistent with the claim language). Given the lack of clarity & precision in the claims, and since the monomer source cannot be clearly read in light of the specification for the claims as written, for purposes of consideration over prior art, any possible meanings may be considered with respect to applied prior art.

It is noted that dependent claim 54 provides a list of specific monomers from which the organic compound monomer **must be** selected, where dependent claim 55 dependent therefrom requires one to select only one of these monomers, which sequences is considered reasonably clear, however dependent **claim 56** that depends through claim 55 & 54 requires "the organic compound monomer consists essentially of an ethylnically unsaturated organic compound", which limitation is confusing as it includes a broader selection of monomers that are present in claim 54, but excludes the perfluorohexane & HMDSO. (Claim 57 selects a particular choice in 54, hence eliminates the problem of claim 56). Note a similar problem in **claim 58** that identifies the broader generic categories of four of the specific monomers of claim 54, with **claim 60** have been an analogous problem, except it depends through claim 59 to claim 54, where a mixture is employed. **Claim 61** is analogous to claim 56, except it excludes all unsaturated by requiring "the monomer compound consists essentially of a saturated organic compound", however the biggest problem is **claim 62**, dependent through claim 55 to claim 54, which requires "the organic compound monomer consists essentially of an aromatic compound or a heterocyclic compounds", thus is contradictory to preceding requirements to require choice of a single compound selected from those listed in claim 54, none of which are either aromatic or heterocyclic compounds, providing an indication that previous broader nomenclature was probably intended also to be considered broader, not just a poor word choice for a previously presented choice by encompassing it.

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Claims 56 & 58-62 are **objected** to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

As discussed above these dependent claims contain options which read on limitations broader than previously required limitations, thus fail to properly further limit a preceding claim. Note that as written **claim 62** is essentially unexamined over prior art, as it flatly contradicts preceding limitations.

3. The **disclosure remains objected** to because of the following informalities: the examiner notes applicants' intent on page 11 of the 2/23/2009 response to address these issues in the future, if necessary.

Proofreading remains needed, for example, on page 2, line 10, there are inappropriate spaces between parts of what is probably intended to be a single US patent number; or such as found on page 9, lines 7, 8, 16, 21 & 30, numerous uses of "eg" that are probably intended to be --e.g. --; or on page 21, line 28, the second pressure value lacks proper superscripting. This should not be considered a complete listing of issues for correction.

Appropriate correction remains required.

4. The **nonstatutory double patenting** rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

The following is a quotation of the appropriate paragraphs of **35 U.S.C. 102** that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of **35 U.S.C. 103(a)** which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 41-42, (43), 44, 47, 50, 63, 67 & 75** are rejected under 35 U.S.C. **102(b)** as anticipated by or, in the alternative, under 35 U.S.C. **103(a)** as obvious over **Dai et al.** ("Surface Modification by Plasma Etching and Plasma Patterning"), who teach plasma polymerization techniques according to **Gengenbach et al.** ("A Multi-Technique Study of the Spontaneous Oxidation of n-Hexane Plasma Polymers").

Claims 68-74 & 76 are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Dai et al.** ("Surface Modification by...Plasma Patterning"), who teach plasma polymerization techniques according to **Gengenbach et al.** ("A Multi-Technique...n-Hexane Plasma Polymers").

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Dai et al. (abstract; figures 1, 7 & 9; p. 9549, Experimental Section, Materials & Plasma Treatment and Electrochemical Polymerization; p. 9550-9552, Pattern Formation by Plasma Polymerization; p. 9553, Conclusions; & reference citation 20) teach **plasma patterning** employing a **mask** via **plasma polymerization** (or alternatively via plasma etching), so as to only deposit plasma polymers on surfaces exposed by apertures in the mask. Substrates employed in the process examples include mica sheets, perfluorinated ethylene-propylene copolymer (FEP) & polytetrafluoroethylene (PTFE) coated with gold or platinum. Dai et al. teach that plasma polymerization enables fabrication of thin polymeric films with a wide range of compositions, since almost all volatile **organic compounds** can be used as monomers in the process, where they provide *examples* of **alcohol vapors**, such as **methanol** or **ethanol** being employed to produce hydrophilic films with hydroxyl groups thereon, or **n-hexane** monomer employed to deposit plasma polymers with a hydrophobic character (§ bridging p. 9550-9551, note both examples are saturated organic monomers), with individual examples of methanol plasma polymer patterns & n-hexane plasma polymer patterns, starting on pages 9551 & 9552, respectively, where the SEM micrograph photos of the pattern deposits (separated hexagonal or square repeated features) may be considered to be essentially spatially separated dots. The mask employed by Dai et al. separates the monomers source from the deposition surface & is considered to be in the shape of a plate, in that it is planar & illustrated as not part of the substrate & its surface (i.e. separately labeled as mask, separated therefrom after processing & indicated to be a TEM grid that has windows, e.g. 50 µm hexagons, 2nd full paragraph on p. 9550). In their experimental section, Dai et al. teach that they employ the plasma equipment & detailed procedures used for plasma treatment & plasma polymerization in their cited reference 20, which is **Gengenbach et al.**, thus essentially incorporating by reference the teachings with respect to plasma polymerization as found therein.

In **Gengenbach et al.** (pages 1400-1401, Experimental, Materials & sample fabrication), is taught that the plasma polymerization technique uses extended length of tape in a semicontinuous process, where

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an important feature of the taught plasma polymerization system is the **transport system for moving extended lengths of tapes through the plasma**, providing the advantage of a continuous plasma treatment over a batch of substrates, providing the capability of coating plasma polymers using a stabilized plasma, so spatial nonuniformities into transport direction may be minimized, however where no compensation has been made for spatial nonuniformities across the tape, such that significant distortions in uniformity were observed on the outer edges of the tape (especially see 1st col. on p. 1401). While Gengenbach et al. do not appear to discuss whether the nonuniformity on the edges of the tape is physical distribution or chemical distribution, as their sample assessment is significantly directed to chemical analysis (see section bridging p. 1401-1402), one of ordinary skill in the art would reasonably conclude that the significant distortions along the outermost edges of the tape substrates encompass both physical distribution & chemical distribution nonuniformities, as the edges would've been furthest from the plasma polymer deposition source material, thus providing a reasonable expectation of both decreased amounts of deposition & a decrease in the larger fragmentation species of the plasma polymer monomer reaching the edges, thus altering composition of the deposit. Also note that Gengenbach et al. discarded from their experimental analysis the start & in portions of the plasma polymer deposits, also in order to minimize inclusion of nonuniformities in their sample analysis.

As Dai et al. is employing the plasma processing techniques & apparatus of Gengenbach et al., they're thus considered to be employing a substrate that is transported through the plasma polymerization apparatus, where the substrate is being moved relative to the plasma polymerization deposition source. The apparatus may also be considered to produce nonuniformities with respect to the outer edges of the semicontinuous substrates employed in this apparatus, as well as possibly at the start & stop of the plasma process. As the process of Dai et al. also requires use of masks in order to cause pattern deposition of the plasma polymer deposited via the apparatus of Gengenbach et al., the claimed substrate, plasma source & mask configuration as claimed may be considered disclosed by Dai et al. Alternatively, as Dai et al.

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specifically state that they use the apparatus & plasma polymerization deposition techniques as recited in Gengenbach et al., it would've been obvious to one of ordinary skill in the art to employ the apparatus as taught in the suggested reference, including employing its important features concerning transport of the substrate during plasma polymerization deposition, in order to enable deposition on essentially a plurality of samples.

While Dai et al. (or Gengenbach et al.) do not discuss the **vapor pressure** of their exemplary organic monomers, thus does not say what whether either methanol or *n*-hexane have a vapor pressure of at least 6.6×10^{-2} mb at room temperature (e.g. ≥ 0.05 Torr = 0.05 mm Hg = 50 mtorr), however **methanol** has a vapor pressure of 40 mm Hg at 5°C, 100 mm Hg at 21.2°C & 1 atm at 64°C; **hexane** has a vapor pressure of 100 mm Hg at 15.8 °C & 1 atm at 68.7°C; while **ethanol** also suggested (but not exemplified) by Dai et al. has a vapor pressure of 40 mm Hg at 19°C, 100 mm Hg at 34.9°C & a vapor pressure of 1 atm at 78.4°C, thus all the specific monomers suggested by Dai et al. clearly meet the criteria of the minimum vapor pressure at room temperature claimed by applicants.

Note since either Dai et al. or Gengenbach et al. input monomer vapor into their RF powered plasma apparatus, this monomer source material for the plasma polymerized deposits may be considered to move with respect to the substrate, as the monomer vapor considered as a monomer source must move in order to be processed by the plasma & be deposited on the substrate. This will be true of any plasma polymerization deposition technique.

With respect to the claim of tracks or lines, this is a design choice, which would have been dependent on the particular enduse with which plasma polymers were desired to be employed, with further noted that in their conclusion is Dai et al. suggest use of the plasma polymerization patterning techniques for region specific depositions of various chemicals and/or biological functionalities, especially when used in conjunction with other surface derivation techniques. Therefore, it would've been reasonable for one of ordinary skill in the art to assume the usefulness of patterning according to

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particular and uses within the wide suggestion of usefulness proposed by Dai et al., which would reasonably have been expected to encompass lines & tracks.

Also while Dai et al. do not discuss heterogeneous plasma polymer deposits in their pattern deposition, as indicated by Gengenbach et al. nonuniformity exists in their plasma deposition apparatus at the start & stop of the process, plus at the outer edges, thus when Dai et al. is employing this apparatus, their patterned plasma polymer deposits would also have these nonuniformities, which would have reasonably been expected encompass physical & chemical nonuniformities with respect to deposition in comparison to the plasma deposits in the central area of the substrate & during the stable portion of plasma polymerization deposition (i.e. excluding start and stop).

It is further noted that while Dai et al. provide exemplary substrates inclusive of metal film surfaces & plastic substrates (FEP & PTFE), they do not mention specific plastic substrates of polyethylene terephthalate, polyethylene, polyvinylchloride, polypropylene or polystyrene, however their particular plasma polymerization patterning techniques is not dependent on the particular substrate material employed, thus use of any conventional substrate would reasonably have been obvious to one of ordinary skill in the art, where all of applicants' specifically claimed plastics would have reasonably been considered conventional by one of ordinary skill, and furthermore their particular exemplary polymer substrates include ethylene or ethylene & propylene structures, such that it would've been further obvious to one of ordinary skill in the art to reasonably expect polypropylene & polyethylene substrates to be effective in the taught process.

6. **Claims 41-76** are **provisionally** rejected on the ground of nonstatutory **obviousness-type double patenting** as being unpatentable over claims 85 & 78-122 of copending Application No. **10/560,210**, in view of **Dai et al.** ("...Plasma Patterning"), discussed above .

Although the conflicting claims are not identical, they are not patentably distinct from each other because while limitations are claimed in different orders, the various limitations of the present claims, are

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also claimed in this copending case, where present independent claim 41 encompasses aspects of the process of **copending (210)**'s independent claim 85, which is narrower in that it requires further coating on the plasma polymerized surface of a "binding entity", now required to comprise a carboxyl or a mean functional group, however the present claims do not exclude such a sequential process. Note that copending claim 85's limitation of moving plasma source (or monomer source) &/or substrate relative to one another covers the same options of relative movement as the present independent claim 41. The current independent claim has been amended to require their nonuniformity to be created by use of a mask, thus differ from the generalized nonuniformity of copending (210), however as seen above **Dai et al.** make it clear that it is old and well-known to create patterned plasma polymerization depositions using a mask between the plasma sores & the substrate surface, including with suggestions of using such plasma processing for region specific deposition of various chemical &/or biological functionalities, hence it would've been obvious to one of ordinary skill in the art, when performing the plasma polymer deposition process of copending (210), to employ masking for pattern deposition as set forth in this copending claims, which is directed to the suggested chemical &/or biological functionalities. Also note how that N-vinyl pyrrolidone in copending claim 102 is a heterocyclic unsaturated compound.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. **Claims 51, 54-55, 61 & 76** are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Dai et al.** ("...Plasma Patterning"), who teach plasma polymerization techniques according to **Gengenbach et al.** ("A Multi-Technique...Plasma Polymers"), as applied in claims 41-42, (43), 44, 47, 50, 63 & 67-76 and further in view of **Morra et al.** (5,514,424).

While **Dai et al.** teach that a wide variety of compositions, including almost all volatile organic vapors can be used as monomers for plasma polymerization processes, they do not provide specific suggestions corresponding to all the individual categories of organic monomers claimed by applicants,

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however as previously discussed **Morra et al.** showed that plasma polymer deposition employing fluorocarbon monomers (col. 3, lines 1-16) is old and well-known to have been affected, such that it would've been obvious to one of ordinary skill in the art to employ such fluorocarbon monomers for alternatives to the specific examples of Dai et al., for their suggested a wide variety of compositions using volatile organic vapors, with a reasonable expectation of affected & useful deposits. Furthermore, Morra et al. in teaching useful substrates on which depositions may be performed include polypropylenes, polyethylenes, PET, polystyrene, etc. (col. 3, lines 21-34), thus providing cumulative evidence for the above assertions concerning obvious & conventional substrate materials.

As previously discussed, **Morra et al.** teach plasma polymer deposition of a fluorinated polymer on substrates, such as high-density polyethylene, where exemplary fluorocarbon monomer employed was perfluoropropene, which the examiner notes has a boiling point of -29.4°C, thus clearly has vapor pressures within the claimed range at room temperature (abstract; col. 3, lines 1-34 & 65-44 (Ex. 1), particularly further noting the teaching in col. 6, lines 60-61 which states "...due to the more heterogeneous chemical structure of the polymer is produced by plasma polymerization", thus showing a general recognition in the art that plasma polymerization inherently it produces structures that may be called heterogeneous, where the examiner notes that since molecular structure variation may also be considered a physical variation, this heterogeneity is both chemical & physical.

While Morra et al. does not specifically list perfluorohexane, they do specifically teach that the monomers are selected from the group consisting of perfluorinated alkanes or alkenes from 1-10 carbons (col. 3, lines 7-15), which is inclusive of perfluorohexane which has 6 carbons.

8. **Claims 45-46, 53-55, 61, 64-65 & 70** are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Dai et al.** ("...Plasma Patterning"), who teach plasma polymerization techniques according to **Gengenbach et al.** ("A Multi-Technique...Plasma Polymers"), as applied in claims 41-42, (43), 44, 47, 50, 63 & 67-76 and further in view of **Renner et al.** ((DD 94657), see translation).

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While **Dai et al.** teach that a wide variety of compositions, including almost all volatile organic vapors can be used as monomers for plasma polymerization processes, they do not provide specific suggestions corresponding to all the individual categories of organic monomers claimed by applicants, nor specifically suggest mixtures of monomers (although such would be encompassed in their general disclosure), however **Renner et al.** teach plasma polymerization deposition techniques employing one or more organic monomers, so as to deposit coatings having different or identical characteristics at different distances from its base surface, where the substrate being deposited on is kept in motion during the deposition process, thus specifically teaching combination of monomers, i.e. copolymers, as well as intentionally providing controlled variation in composition. In their specific examples, Renner et al. provide example of specific single siloxane monomers of hexamethyl disiloxane or octamethyltrisiloxane, both of which are saturated organic monomer compounds, either comprising hydrocarbon ligands. Therefore, it would've been obvious to one of ordinary skill in the art to employ such plasma polymerizable monomer or monomers, e.g. siloxanes, as taught by Renner et al. in the process of Dai et al., with the reasonable expectation of being able to provide effective pattern plasma polymerization deposits, including the advantage of being able to optimize the composition of the deposit to provide desirable characteristics differentiated between substrate interface & surface, providing cumulative evidence and motivation for creating such structures, especially further considering that the plasma polymerization process of Renner et al. is analogous to that of Dai et al. as described by Gengenbach et al. in also employing continuous movement during deposition.

As previously set forth, **Renner et al.** teach a plasma polymerization technique, where the substrate, a magnetic storage medium exemplified by disks or tape, is kept in motion during the plasma polymer coating process, and where the composition & degree of polymerization of the deposited polymer coating is changed by control of the deposition process parameters &/or mixing ratio of various monomers, or a monomer & inert gas, so that the coating has different properties at different distances

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from the substrate surface. In example 1, plasma deposition on magnetic recording media disc substrates is performed at a constant pressure of 5 Torr, with an initial partial pressure of hexamethyldisiloxane of 10^{-3} Torr, which is continuously increased during deposition in order to reduce the degree of polymerization, thus producing a nonuniform deposit, which results in desirable characteristics with respect to bond strength to the substrate & elasticity on the upper surface. In example 2, a magnetic storage medium in tape form (e.g. substrate would be polymeric = plastic) is passed between electrodes in a plasma atmosphere of octamethyltrisiloxane at 0.5 Torr (i.e. >0.05 Torr = 6.6×10^{-2} mb), using two electrode systems of different lengths with plasma being generated at different voltages to effect the taught differentiated plasma polymer deposition. In the translation, besides the examples, also see the 2nd-5th paragraphs on the 2nd page & claims, esp. 1-3.

While the specific examples only employed a single type of monomer compound, i.e. hexamethyldisiloxane or octamethyltrisiloxane, both organosiloxane compounds having saturated hydrocarbon ligands (i.e. may be considered a saturated organic compound & a type of hydrocarbon compound), the generic teachings also indicate that mixtures of various monomers may be employed, thus reading on copolymeric depositions. These teachings are considered suggestive of copolymeric depositions involving at least one organic monomer with at least one hydrocarbon, as suggested use of monomer mixtures would reasonably have been considered with respect to the to exemplified monomers employed with other monomers or each other, such that it would've been obvious to one of ordinary skill in the art via routine experimentation to determine reasonable & effective monomer mixtures given these considerations.

Also note that depositing on tapes, may be considered effectively depositing in tracks or lines of deposition. Plasma polymerization inherently meets the requirement of heterogeneous chemical or physical, such that any plasma polymerized deposition may be considered heterogeneous through its thickness & over its surface.

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Note with respect to substrate composition, while magnetic tape medium, as far as the examiner knows are always polymeric, i.e. plastic, the translation does not actually say that the tapes coated are plastic, however it would've alternatively have been obvious to one of ordinary skill in the art to employ conventional compositions for magnetic tapes, i.e. plastics such as PET, as that is what is standardly known to be employed for such purposes.

While discussion in the translation indicates movement of the substrate with respect to the plasma, which may be considered the monomer source, with indication that the storage medium, i.e. substrate is kept in motion during the plasma polymerization process, it would have alternatively have been obvious to one of ordinary skill in the art that equivalent relative effects would have been produced by moving the plasma source with respect to the substrate, such that this would have been an obvious alternative, dependent on particular shape of the magnetic recording medium desired to be protectively coated.

9. **Claims 48, 50-52, 54-58 & 61 (62)** are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Dai et al.** ("...Plasma Patterning"), who teach plasma polymerization techniques according to **Gengenbach et al.** ("A Multi-Technique...Plasma Polymers"), as applied in claims 41-42, (43), 44, 47, 50, 63 & 67-76 and further in view of **Badyal et al.** (6,358,569 B1), optionally considering **Timmons et al.** (6,306,506 B1) for claims 52 & 57.

While **Dai et al.** teach that a wide variety of compositions, including almost all volatile organic vapors can be used as monomers for plasma polymerization processes, they do not provide specific suggestions corresponding to all the individual categories of organic monomers claimed by applicants, however **Badyal et al.** provide teachings of alternative monomers (unsaturated-carboxylic acid monomers, such as acrylic acid, or alternatively suggested a ethylene oxide or styrene oxide; or plasma derived CF_3 which causes further plasma polarization by reacting with carboxylic acids or esters on the surface on col. 5, lines 36-40; or background discussion) to be used in plasma polymerization to be

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applied to other polymers such as polyethylene & for biocompatible properties, thus it would've been obvious to one of ordinary skill in the art to use subject materials & monomers as suggested by Badyal et al. in the teachings of Dai et al. as discussed above, with the reasonable expectation of their effective pattern deposition via the primary reference(s) teachings. While these teachings do not specifically specify the monomer of tetraethylene glycol mono allyl ether, the related ethylene oxide monomer & other O-containing hydrocarbons would have reasonably suggested to one of ordinary skill in the art that plasma polymerization of analogous O-containing hydrocarbon compounds would have also been expected to be effective. Alternatively, **Timmons** (6,306,506) directed to analogous plasma processing techniques (abstract; summary; col.6-8, etc.), besides teaching many other relevant monomers, is noted to provide cumulative evidence of the obviousness of employing allyl glycidyl ethers (table of monomer examples in column 9), such that the specific species on tetraethylene glycol mono allyl ether, would've been further obvious to one of ordinary skill in the plasma polymerization art.

As previously set forth, **Badyal et al.** teach pulsed plasma polymerization of monomers, such as **unsaturated-carboxylic acid**, or **acrylic acid** or **ethylene oxide** or **styrene oxide**, to deposit on substrates that may be porous or microporous material, such as polyethylene or cellulose, etc., where the coating may be applied such that it is continuous & impervious, or the process may be stopped at an earlier stage such that the apertures in the porous material are not completely filled, dependent on desirability for particular enduse, which is inclusive of uses requiring biocompatible properties. The option of incompletely filling pores on porous material created a plasma polymerize surface that was considered nonuniform across the surface to a greater degree than general heterogeneity of plasma polymerized deposits when parameters or materials in the plasma are not varied. An exemplary procedure discusses plasma polymerization of **acrylic acid** monomer input into the plasma reactor as a monomer vapor admitted via a needle valve to a pressure of 0.2 mb. Particularly see the abstract; col. 1,

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lines 1-col. 2, lines 5 & 40-58, esp. col. 1, lines 43-54 & 62-col. 2, line 5; col. 3, lines 38-45 & 54-col. 4, lines 12; col. 5, lines 37-41.

10. **Claims 45-46, 48-49, 51, 53-56, 58-61, (62) & 64-66** are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Dai et al.** ("...Plasma Patterning"), who teach plasma polymerization techniques according to **Gengenbach et al.** ("A Multi-Technique...Plasma Polymers"), as applied in claims 41-42, (43), 44, 47, 50, 63 & 67-76 and further in view of **Nomura** (6,022,602)..

While **Dai et al.** teach that a wide variety of compositions, including almost all volatile organic vapors can be used as monomers for plasma polymerization processes, they do not provide specific suggestions corresponding to all the individual categories of organic monomers claimed by applicants, however **Nomura** (602) also teaches plasma polymerization involve the movement of substrate & monomer gas/vapor in order to provide effective plasma polymer deposition, where Nomura provides teachings with respect to monomers & mixtures of monomers that would have reasonably been expected by one of ordinary skill the art to have been effective in the process of Dai et al., as providing other known & conventional monomer vapors for plasma polymerization processes.

It was previously noted that the type of motion employed, would have been expected to be depended on the particular type of substrate being treated, with **Nomura** ((602): abstract ; figures, esp.1; col. 1, lines 15-60; col. 2, lines 32-65; col. 3, lines 38-65; col. 4, lines 35-50; col. 7, lines 15-50; col. 8, lines 65-col. 9, lines 40 & 56-63; col. 10, lines 5-10 & 50-59; col. 12, lines 7-20 & 42-67; col. 13, lines 7-25 for monomers & 26-44+ for more parameters; & examples) considered in this respect & due to discussion of **plasma polymerization** on the interiors of continuous tubing, such as may be used for **medical devices** like catheters, vascular grafts, etc., where the tubing is passed through a plasma polymerization zone, thus is also consistent with the type of movement of substrates taught in Dai et al. for continuous substrates, thus further providing for the obviousness of such movement. The types of substrate material being coated by plasma polymerization, also include conventional plastics such as

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polyvinylchloride, polyethylene terephthalate, polyolefins, polyfluorinated compositions, thus are consistent with substrates as discussed in Dai et al., providing cumulative evidence with respect to expected useful polymeric substrates as asserted above. It is also taught that such tubing, which is porous, but has low porosity, may require their techniques of having periodic sequential openings to allow input of monomer gases to the interior, or their background discussion that it was known to perform such plasma polymerization on sufficiently porous tubing, thus is also consistent with possible meanings of required movement of monomer source & the importance thereof for effective deposition. With respect to particular deposition materials, Nomura (602) provides teachings of using **monomer vapors or mixtures of monomer vapors**, with further discussion of monomers that may effectively be deposited via plasma polymerization processes on such surfaces, inclusive of **tetrafluoroethylene** to create polyfluorocarbon surfaces, & **siloxanes** such as **hexamethyldisiloxane** to create polysiloxane deposits, **alkanes & alkenes, acrylic acid, allylamine, benzene, styrene, diaminocyclohexane**, etc., such that it would've been further obvious to one of ordinary skill to deposit such monomers in the plasma polymerization as discussed in Dai et al., in accordance with the teachings of Gengenbach et al. plasma techniques/apparatus, as discussed above, given the alternative monomers effectiveness in analogous processing has been demonstrated, including on overlapping substrate materials & with respect to overlapping hydrocarbon compounds, plus as their desirability for enduses analogous to suggested biological uses provides further motivation, as well as effectiveness in depositing while employing analogous motions.

11. **Claims 45-46, 48-66 & 76** are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Dai et al.** ("...Plasma Patterning"), who teach plasma polymerization techniques according to **Gengenbach et al.** ("A Multi-Technique...Plasma Polymers"), as applied in claims 41-42, (43), 44, 47, 50, 63 & 67-76 and further in view of **Muguruma et al.** (7,087,149 B1 \equiv WO 00/63685), optionally considering **Timmons et al.** (6,306,506 B1) for claims 52 & 57.

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While **Dai et al.** teach that a wide variety of compositions, including almost all volatile organic vapors can be used as monomers for plasma polymerization processes, they do not provide specific suggestions corresponding to all the individual categories of organic monomers claimed by applicants, however **Muguruma et al.** (discussed below) teach plasma polymerization employing various monomers or monomer mixtures for creation of biosensors, where the retention of various functional groups, such as acid, alcohol, amines, ethylene oxide, etc. is desirable, thus providing teachings concerning particular monomer use in plasma polymerization that one of ordinary skill the art would reasonably expect to be effective in the process of Dai et al., whose plasma polymerization process are in accordance with the teachings of Gengenbach et al., create plasma polymer deposits with overlapping functional groups, suggested for the types and uses provided by Muguruma et al.

As previously set forth, **Muguruma et al.** teach making a biosensor structure, where a preferred embodiment has 2 plasma polymerize layers, with an intervening patterned electrode layer, such that the resultant structure may be considered to be nonuniform, especially considering that chemically different plasma polymerized deposits count as nonuniform, in that the surface plasma polymer is not planar & does not have the same thickness over the whole surface, but the thickness changes where it crosses the electrode pattern having lines of thicker polymer at the edges of the electrode pattern. Also, where the first plasma polymer is directly overlaid by the second deposited plasma polymer, there are at least two plasma polymers formed on the surface, such at the composition where they interface may be considered different, providing a compositional nonuniformity. The surface plasma polymer provides binding sites for biomolecules, such as enzymes, where the overall structure is used for analysis purposes. With respect to plasma polymer deposition processes, Muguruma et al. teach that the plasma polymers may contain one or more functional groups inclusive of **acids** (-COOH), **hydroxy** (-OH), **amines**, -CH=CH₂ (alkenes), **ethylene oxide** (e.g. epoxide or ethylene glycol) groups, etc., where such functional groups may be supplied in single monomer gases or mixtures of monomers, & include such compounds as

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allylamine, methanol, acetic acid, acrylic acid, hexamethyldisiloxane, hexamethylcyclotrisilazane, etc.

Note that these functional groups are also provide "nonuniform characteristics" being heterogeneous chemical variations. Substrate boards may include glass or plastic or silicon or cellulose. Muguruma et al. teach that plasma polymerization conditions can be appropriately set by one of ordinary skill in the art dependent on monomer gas employed, where exemplary pressures for gases such as hexamethyldisiloxane or acetonitrile monomers include pressures of 1-10 Pa, i.e. 0.1-0.01 mbar. In Muguruma et al., particularly see in the US patent (considered to provide the translation for the Japanese PCT document), the abstract; figures 1-2; col. 1, lines 10-25+; col. 3, lines 15-32 & 66-col. 4, lines 20 & 38-col. 5, lines 30+; col. 6, lines 31-67; col. 7, lines 7-22; col. 8, lines 6-50; & examples, such as Ex. 1 on cols. 11-12.

Muguruma et al. differ by not discussing whether or not movement occurs with respect to substrate & monomer source (or plasma), however as discussed above the movement of the monomers into & through the plasma may be considered inherent in the process & relevant to the claims has written, and the primary reference(s) provides reasons for movement of the substrate, plus patterning via masking therewith, thus it would've been obvious to one of ordinary skill in the art to alternative monomers as taught to optimize their plasma polymer deposition for specific alternative purposes, such as to create more effective biosensors due to effective distribution of functional groups on the surface.

While Muguruma et al. teach various oxygen-containing hydrocarbon compounds & specify ethyleneoxide as a desirable functional group to employ (col. 4, lines 1-9 & 55-67; col. 6, lines 30-45), they do not appear to particular specify employing tetraethylene glycol monoallyl ether, however it would've been obvious too one of ordinary skill in the art to employ specific O-containing hydrocarbon is having taught groups such as ethyleneoxide, such that it would've been further obvious to one of ordinary skill in the art to employ the specific claimed ethylene oxide compounds in plasma polymerization with reasonable expectation of effectively providing oxygen functionalized plasma polymers as a deposit.

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Alternatively, **Timmons** (6,306,506) directed to analogous plasma processing techniques (abstract; summary; col.6-8, etc.), besides teaching many other relevant monomers, is noted to provide cumulative evidence of the obviousness of employing allyl glycidyl ethers (table of monomer examples in column 9), such that the specific species on tetraethylene glycol mono allyl ether, would've been further obvious to one of ordinary skill in the plasma polymerization art.

12. **Claims 45-46, 48-49, 51, 54-56, 58-61, (62), 64-66 & 76** are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Dai et al.** ("...Plasma Patterning"), who teach plasma polymerization techniques according to **Gengenbach et al.** ("A Multi-Technique...Plasma Polymers"), as applied in claims 41-42, (43), 44, 47, 50, 63 & 67-76 and further in view of **Nomura et al.** (5,843,789).

While **Dai et al.** teach that a wide variety of compositions, including almost all volatile organic vapors can be used as monomers for plasma polymerization processes, they do not provide specific suggestions corresponding to all the individual categories of organic monomers claimed by applicants, however **Nomura** (789) also teaches plasma polymerization involve the movement of substrate & monomer gas/vapor in order to provide effective plasma polymer deposition, where Nomura provides teachings with respect to monomers & mixtures of monomers that would have reasonably been expected by one of ordinary skill the art to have been effective in the process of Dai et al., as providing other known & conventional monomer vapors for plasma polymerization processes.

As previously set forth, **Nomura et al.** ((789) abstract; figures 1-2; col. 3, lines 27-57; col. 4, lines 10-20; col. 5, lines 10-60; col. 6, lines 5-50; col. 7, lines 7-34 & 50-col. 8, lines 25 & 55-65; col. 9, lines 1-10, 22-40 & 55-65; col. 10, lines 12-50; and examples & claims) teach plasma polymerization deposition of claimed monomer(s) (amines such as allylamine; carboxylic acids such as acrylic acid; halogenated olefins; cyclic compounds; monomers containing hydroxyls; vinyl or allyl olefins; etc.) on porous substrates that may be rotated on a disk so as to pass through a plasma formed with those monomers, where the coating deposited on the porous substrate (polyethylene, polypropylene,

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polyvinylchloride, etc.) does not clog or fill the pores, thus is considered to be nonuniform across the surface on the order of the size of the pores as well as due to the plasma polymerization employed. This improved porous material is taught to be used for blotting analysis of proteinaceous & genomic matter, or in immunoassay analysis. As the plasma polymerization deposition is used for biological analysis are relevant to the process & suggested use of Dai et al.'s process what ordinary skill in the art would have found it obvious to employ any of the specific monomers or classes of monomers as suggested for plasma polymerization in the primary reference(s) teachings with reasonable expectation of success, effectiveness & usefulness.

13. **Claims 45-46, 49, 51, 53-56, 58-61, (62), 64-66 & 76** are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Dai et al.** ("...Plasma Patterning"), who teach plasma polymerization techniques according to **Gengenbach et al.** ("A Multi-Technique...Plasma Polymers"), as applied in claims 41-42, (43), 44, 47, 50, 63 & 67-76 and further in view of **Hu et al.** (5,463,010).

While **Dai et al.** teach that a wide variety of compositions, including almost all volatile organic vapors can be used as monomers for plasma polymerization processes, they do not provide specific suggestions corresponding to all the individual categories of organic monomers claimed by applicants, however **Hu et al.** teach monomer gas/vapor in order to provide effective plasma polymer deposition, where Nomura provides teachings with respect to monomers & mixtures of monomers that would have reasonably been expected by one of ordinary skill the art to have been effective in the process of Dai et al., as providing other known & conventional monomer vapors for plasma polymerization processes.

As previously set forth in **Hu et al.** (010), see the abstract; figures, especially 1-2; col. 1, lines 7-15+; col. 3, lines 48-col. 4, lines 18, 33-37, 42-67+; col. 6, lines 13-col. 7, lines 35; col. 8, lines 5-40 & 46-col. 11, line 3; & examples e.g. Ex.2 & 3 on cols. 11-12, which teach plasma polymerization using only a single type of monomer of aliphatic hydrocyclosiloxane, or using mixtures of these siloxane monomers with comonomer(s) inclusive of **fluorocarbons** or organo based monomers or functional

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terminated monomers (e.g. **ethylene**, **allylamine**, trimethyl silyl allylamine, hydrocarbons, unsaturated amines...), to affect polymer or copolymer depositions via RF plasma onto substrates inclusive of silicon catheters, metal wire and fibers, such as polypropylene microporous hollow fibers, to produce "membranes" thereon. Taught enduses include biocompatible surfaces in biomedical devices. Note "aliphatic" includes both saturated & unsaturated hydrocarbons, i.e. alkanes & alkene, and the hydrocyclicsiloxanes are heterocyclic compounds. Since the deposit the coating is described as a "membranes", it is considered an indication that the plasma polymer coated substrate remains microporous, thus may be considered nonuniformly coated across the surface with respect to the microporous structure, i.e. the pores aren't plugged.

Also see figure 20 which shows a 2-phase morphology of TMCTS plasma polymerized membrane on polypropylene where the plasma polymerization as seen in the SEM picture shows dots, but are spatially separated and made of plasma deposited phases of plasma polymer, which given applicants current phrasing which encompasses both macrostructure & microstructure both chemically and physically for heterogeneous or nonuniformity characteristics

14. **Claims 48, 52, 54-58 (& 62)** are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Dai et al.** ("...Plasma Patterning"), who teach plasma polymerization techniques according to **Gengenbach et al.** ("A Multi-Technique...Plasma Polymers"), as applied in claims 41-42, (43), 44, 47, 50, 63 & 67-76 and further in view of **Yoshimura et al.** ("Guidelines for Preparation of Plasma-Polymer in View of Surface Functionalization of Solid Materials"), optionally considering **Timmons et al.** (6,306,506 B1) for claims 52 & 57.

While Dai et al. teach that a wide variety of compositions, including almost all volatile organic vapors can be used as monomers for plasma polymerization processes, they do not provide specific suggestions corresponding to all the individual categories of organic monomers claimed by applicants, however **Yoshimura et al.** (abstract; table 1; page 228, top half) also directed to plasma polymerization

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were surface functionalization of the material is taught, particularly using oxygen containing monomers & also mentioning that the plasma polymerize film formed on the substrate may be done while using masking, provides an exemplary list of useful oxygen containing monomers, inclusive of further organic alcohols, such allyl alcohol (e.g. 2-propen-1-ol) & furfuryl alcohol (a heterocyclic compound which would read on claim 62 if it was logically claimed); as well as other oxygen containing compounds such as acrylic acid or ethylene glycol or dimethyl ether ethylene glycol, etc. Therefore, it would've been obvious to one of ordinary skill in the art too employs such monomers that are effective in plasma polymerization deposition processes, including with masking, with a reasonable expectation that they would be effective in the process of Dai et al., especially considering that Dai et al. in using the techniques of Gengenbach et al., who teach the superiority of their plasma apparatus in plasma polymerization over conventional bell jar chamber structures as depicted in figure 1 of Yoshimura et al.

It is further noted that while tetraethylene glycol monoallyl ether is not specifically taught, Yoshimura et al. indicate the general usefulness of ethylene glycol containing compounds by providing examples of two compounds of that category, one of which is also in ether, hence given the taught usefulness of compounds of the same general category, it would've been further obvious to one of ordinary skill in the art to employ tetraethylene glycol monoallyl ether in the taught plasma polymer deposition of this combination, as they would have reasonably expected other ethylene glycol ether compounds to be analogously effective in plasma polymerization processing, inclusive of providing oxygen containing functional groups thereby. Alternatively, **Timmons** (6,306,506) directed to analogous plasma processing techniques (abstract; summary; col.6-8, etc.), besides teaching many other relevant monomers, is noted to provide cumulative evidence of the obviousness of employing allyl glycidyl ethers (table of monomer examples in column 9), such that the specific species on tetraethylene glycol monoallyl ether, would've been further obvious to one of ordinary skill in the plasma polymerization art.

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15. **Claims 41-76 {especially 41(i) & 43}** are rejected under 35 U.S.C. **112**, **first** paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The cited support & other sections of the original specification have been reviewed for consideration of whether **claim 43 (& the option (i) in claim 41)**, which claims moving the "**monomer source**" (i.e. the source of the monomer gas or vapor, as opposed to the plasma source which comprises various plasma excited monomer species) relative to the substrate. The paragraph bridging pages 15-16 & further discussion of "writing" using a mask with holes attached to the mask plate (on page 16) are concerned with moving the substrate, and have no movement of either the plasma source, the plasma outlet through the mask, nor the monomer source itself (also see figure 1), where the latter is what is claimed in claim 43. While original claim 1 recited moving the monomer source across a surface [to be deposited on], it did not relate to the presently claimed mask plate, i.e. mask, as well as having other problems which were previously discussed, thus does not supply support to the present combination of claim limitations. Page 5, lines 22-31, discussed drawing or writing a pattern using a micrometer scale orifice or microcapillary to write a molecular architecture on a surface, which teaching is describing a nozzle type structures, not the claimed mask, nor is it considered directed to moving "the monomer source", as the source of the monomer is a different entity than the plasma, as the monomer is supplied to the plasma (important process distinctions analogous to those previously discussed). On page 6, lines 7-15, plasma writing is discussed as being able to create chemical & molecular architectures having two or three dimensional patterns, where no particular technique of plasma writing is described, but generally it is contrasted as being "without the need to prefabricated masks or stencils", thus it's not describing the claims *as written*, which use a pre-fabricated mask, i.e. the mask plate that separates substrate from monomer source, which is a mask & which was previously formed. Page 6, line 25-page 7, line 12 have

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various disclosures of moving the substrate relative to the monomer source & vice versa, & using a precision XYZ stage to move either substrate or plasma source, however there was no discussion found of employing a mask & moving the "monomer source", or even employing a mask & moving the plasma source relative to the substrate, thus this combination of limitations as presently written would appear to encompass **New Matter**.

Note that claim 42, in choosing the option of 41(ii) does not have the problem as discussed above, especially considering that original independent claim 1 discussed moving the monomer source across the substrate surface.

All the claims do however have the problem caused by the scientifically ideological word association in claim 41 as discussed above in section 2, which is requiring the organic monomers to be the source of the production of the plasma, which while it may be an unintentional meaning due to inaccurate phrasing, it provides a meaning which may be considered **New Matter**, since the original disclosure does not appear to teach or enable using organic monomers to create plasma, only to employ them when creating plasma for plasma polymer deposition, an important distinction.

16. It is noted that the Japanese reference to **Shinohara** cited in applicants 10/27/09 IDS relates to plasma polymerization onto a moving substrate, but does not discuss patterning thereof or masking.

Other art of interest, previously cited included: **Kurosawa et al.** ("Absorption of Anti-Human IgG to Plasma Polymerized Allylamine Film Formed on Silver Plate") directed to further plasma polymerized depositions used for assay purposes; **Timmons et al.** (5,876,753 & 2003/0113477 A1 & 2002/0004104 A1) which contain teachings analogous to those found in **Timmons** (6,306,506) discussed previously, which is noted to provide cumulative evidence of the obviousness of employing allyl glycidyl ethers (table of monomer examples in column 9), such as tetraethylene glycol mono allyl ether.

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Kolluri et al. (6,277,449 B1) provide teachings substantially similar to that of Muguruma et al. or Badyal et al., for producing plasma polymerize coatings with binding sites for further depositions, where the nonuniformity in the deposits of Kolluri et al. may be considered to be on the molecular level, such as illustrated in various functionalize surfaces, for example the resulting surface in figure 37 has three different functional groups thereon, thus may be considered to be nonuniform across the plasma polymerized surface in this respect, however such a rejection is redundant at this time.

17. Applicant's arguments with respect to claims 41-76 have been considered but are moot in view of the new ground(s) of rejection.

18. **Any inquiry** concerning this communication or earlier communications from the examiner should be directed to **Marianne L. Padgett** whose telephone number is **(571) 272-1425**. The examiner can normally be reached on M-F from about 9:00 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Marianne L. Padgett/
Primary Examiner, Art Unit 1792

MLP/dictation software

11/29-30/2009